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RESEARCH INTERESTS **Reinforcement learning**, robotics, knowledge representations, representation learning, time series prediction and machine learning.

ACADEMIC POSITIONS **Senior Research Scientist** July 2017-Present
DeepMind

Research Associate & Adjunct Professor July 2017-Present
Department of Computing Science, University of Alberta

Assistant Research Scientist 2016-May 2017
Department of Computer Science, Indiana University

EDUCATION **Postdoctoral Fellow** 2015-2016
Department of Computer Science, Indiana University

 Doctor of Philosophy in Computing Science 2015
University of Alberta
Advisor: Professor Richard Sutton
Thesis topic: Developing a predictive approach to knowledge

 Master of Science in Computing Science 2006
University of Alberta
Advisor: Professor Richard Sutton
Thesis topic: A Standard System for Benchmarking in Reinforcement Learning

 Bachelor of Science in Computer Science 2004
University of New Brunswick
Honors with a Specialisation in High Performance Scientific Computing

PUBLICATIONS **Refereed Conference Articles**

Meta-descent for online, continual prediction, Andrew Jacobsen, Matthew Schlegel, Cam Linke, Thomas Degris, Adam White, Martha White. AAAI Conference on Artificial Intelligence (AAAI), 2019.

Context-dependent upper-confidence bounds for directed exploration, Raksha Kumaraswamy, Matthew Schlegel, Adam White, Martha White. Advances in Neural Information Processing Systems (NIPS), 2019.

Directly Estimating the Variance of the λ -Return Using Temporal-Difference Methods, Craig Sherstan, Brendan Bennett, Kenny Young, Dylan Ashley, Adam White, Martha White, Richard Sutton. Conference on Uncertainty in Artificial Intelligence (UAI), 2018.

Organizing experience: a deeper look at replay mechanisms for sample-based planning in continuous state domains, Yangchen Pan, Muhammad Zaheer, Adam White, Andrew Patterson, Martha White. International Joint Conference on Artificial Intelligence (IJCAI), 2018.

Accelerated Gradient Temporal Difference Learning, Yangchen Pan, Adam White, Martha White. AAAI Conference on Artificial Intelligence, 2017.

Introspective Agents: Confidence Measures for General Value Functions, Craig Sherstan, Marlos C. Machado, Adam White, Patrick M. Pilarski. Artificial General Intelligence (AGI), 2016.

Investigating practical linear temporal difference learning, Adam White, Martha White. International Conference on Autonomous Agents and MultiAgent Systems (AAMAS), 2016.

Adapting the trace parameter in reinforcement learning, Martha White, Adam White. International Conference on Autonomous Agents and MultiAgent Systems (AAMAS), 2016.

Scaling life-long off-policy learning, Adam White, Joseph Modayil, Richard S. Sutton. IEEE International Conference on Development and Learning and Epigenetic Robotics (ICDL), 2013. (Distinguished paper)

Multi-timescale nexting in a reinforcement learning robot, Joseph Modayil, Adam White, Richard Sutton. From Animals to Animats, 2012.

Acquiring Diverse Predictive Knowledge in Real Time by Temporal-difference Learning, Joseph Modayil, Adam White, Patrick Pilarski, Richard Sutton. Systems, Man, and Cybernetics, 2012.

Horde: A scalable real-time architecture for learning knowledge from unsupervised sensorimotor interaction. Richard Sutton, Joseph Modayil, Michael Delp, Thomas Degris, Patrick Pilarski, Adam White, Doina Precup. International Conference on Autonomous Agents and Multiagent Systems, 2011.

Interval Estimation for Reinforcement-Learning Algorithms in Continuous-State Domains, Martha White and Adam White. Advances in Neural Information Processing Systems (NIPS), 2010.

Feature construction for reinforcement learning in hearts, Nathan Sturtevant, Adam White. Computers and Games, 2007.

Journal Articles

Multi-timescale Nexting in a Reinforcement Learning Robot, Joseph Modayil, Adam White, Richard Sutton. Adaptive Behavior, 2014.

The reinforcement learning competitions, Shimon Whiteson, Brian Tanner, Adam White. AI Magazine, 2010.

RL-Glue: Language-independent software for reinforcement-learning experiments, Brian Tanner, Adam White. The Journal of Machine Learning Research, 2009.

Thesis

A Standard System for Benchmarking in Reinforcement Learning, Adam White, Master's Thesis, University of Alberta, 2006.

Developing a predictive approach to knowledge, Adam White, Doctoral Thesis, University of Alberta, 2015.

AWARDS

Top 200 Reviewer Award (highest award) for the 2019 International Conference on Neural Information Processing Systems

Top 10 Reviewer Award for the 2018 International Conference on Machine Learning

Best Reviewer Award for the 2017 International Conference on Neural Information Processing Systems

Reviewer Award for the 2015 International Conference on Machine Learning

Paper of Distinction at the IEEE International Conference on Developmental Robotics and Epigenetic Robotics, 2012

Best Paper at the International Workshop on Evolutionary and Reinforcement Learning for Autonomous Robot Systems, 2013

National NSERC Scholarships:

- 70,000 over two years in PhD (NSERC CGS D, 2008)
- 17,500 over one year in MSc (NSERC CGS M, 2005)

Provincial Alberta Innovates Scholarship:

- 150,000 over five years in PhD (2006)

Three national NSERC undergraduate research scholarships.

Several institutional awards including the Queen Elizabeth II Doctoral Prize (2006) and the Walter H. Johns Fellowship (2005, 2006)

SUPERVISION	PhD Students	
	Sina Ghiassian	2017-present
	Banafshe Rafiee	2019-present
	MSc Students	
	Andrew Jacobsen	2018-present
	Han Wang	2018-present
	Cam Linke	2018-present
	Eugene Chen	2018-present
	Banafshe Rafiee (completed)	2017-2018
	Undergraduate Supervision (research)	
Andrew Jacobsen	2017-2018	
TEACHING	CMPUT 366: Intelligent Systems, University of Alberta (undergraduate) <i>Fall 2018</i>	
	CMPUT 609: Reinforcement learning For Artificial Intelligence, University of Alberta (Graduate) <i>Fall 2017</i>	
	CMPUT 366: Intelligent Systems, University of Alberta (undergraduate) <i>Fall 2017</i>	
	CS B659: Reinforcement Learning, Indiana University (Graduate) <i>Spring 2017</i>	
	CS B659: Reinforcement Learning, Indiana University (Graduate) <i>Spring 2016</i>	
TALKS	Workshop on Deep, fast and shallow learning in humans and machines.Indiana University Department of Statistics Colloquium Series, Invited talk: <i>Curiosity for learning about many things in parallel</i> , May 2018	
	The 11th Barbados Workshop on Reinforcement Learning, <i>Realtime Interactive Mastery</i> , March 2018	
	Indiana University Department of Statistics Colloquium Series, Invited talk: <i>Continual prediction learning on robots</i> , November 2016	
	2016 AAMAS, Singapore, <i>Investigating practical linear temporal difference learning</i> , May 2016	
	Intelligent and Interactive Systems Seminar, Indiana University <i>Developing a predictive approach to knowledge</i> , April 2016	
	The 9th Barbados Workshop on Reinforcement Learning, <i>Experiences trying to put it all together</i> , April 2015	

AAAI Workshop on Decision Making With Big Data. *Surprise and curiosity in big data reinforcement learning*, July 2014

ICDL. *Scaling life-long off-policy learning*, December 2012

Invited Talk Flowers Group, INRIA France. *Parallel off-policy knowledge acquisition*, September 2012

International Workshop on Evolutionary and Reinforcement Learning for Autonomous Robot Systems, *Acquiring a Broad Range of Empirical Knowledge in Real Time by Temporal-Difference Learning*, August 2012

The 7th Barbados Workshop on Reinforcement Learning, *Real-time Off-policy Learning from Big Data in Robotics*, April 2012

The 6th Barbados Workshop on Reinforcement Learning, *Multi-time-scale Nexting in a Reinforcement Learning Robot*, April 2011

The 5th Barbados Workshop on Reinforcement Learning, *Feature Selection for Hearts and a Trail Towards Feature Discovery for a Mobile Robot*, March 2010

AAMAS 2011. *Horde: A Scalable Real-time Architecture for Learning Knowledge from Unsupervised Sensorimotor Interaction*, May 2011

NIPS Reinforcement Learning Workshop: Benchmarks and Bakeoffs II, *A New Evaluation Framework for Reinforcement Learning Experiments*, Invited talk, December 2005

Regular lab seminars and periodic University of Alberta Tea Time Talks (2004-Present).

SERVICE AND
OUTREACH

Reviewer

- Senior Program Committee for the AAAI Conference on Artificial Intelligence
- Program Committee International Conference on Neural Information Processing Systems
- Program Committee International Conference on Machine Learning
- Program Committee International Joint Conference on Artificial Intelligence
- Program Committee for the International Conference on Learning Representations
- Program Committee Artificial Intelligence and Statistics Conference
- International Conference on Autonomous Agents and Multi-agent Systems
- Transactions on Computational Intelligence and AI in Games
- European Workshop on Reinforcement learning
- Journal of Machine Learning Research
- Artificial Intelligence Journal
- Journal of Robotics
- Journal Computational Intelligence and AI in Games

Workshops Organized

- ICML Reinforcement Learning Competition, *Organising Committee*, 2008
- NIPS Workshop: The First Annual Reinforcement Learning Competition, *Principle Organiser*, 2007
- NIPS Reinforcement Learning Workshop: Benchmarks and Bakeoffs II, *Organising Committee*, 2006

CODE **RL-Glue version 1.0** 2006
RELEASED LANGUAGES: JAVA, C, AND PYTHON. A language independent communication protocol and evaluation framework for reinforcement learning experiments.

RL-Glue version 2.0 2007
LANGUAGES: JAVA, C, AND PYTHON. A version of RL-Glue that allowed benchmarking competitions to be run via remote socket communication.

PERSONAL *Citizenship:* Canada
INFORMATION *Languages:* English